

Serial No. 09/512,411

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IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Inventor(s): Xiaobao Chen
Ioannis Kriaras
Andrea Paparella

Case: Chen 3-2-2

Serial No.: 09/512,411 **Group Art Unit:** 2144

Filed: February 24, 2000

Examiner: Thanh T. Nguyen

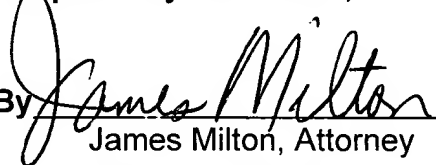
Title: Mobile IP Supporting Quality of Service

THE COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
SIR:

Enclosed is an Appellant's Brief Under 37 C.F.R. 1.193 Before the Board of Patent Appeals and Interferences in the above-identified appeal.

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Respectfully submitted,

By 

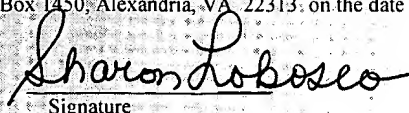
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF
PATENT APPEALS AND INTERFERENCES**

Patent Application

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SIR:

APPELLANT'S BRIEF UNDER 37 C.F.R. 1.192

This is an appeal to the Board of Patent Appeals and Interferences from the Final Rejection dated June 25, 2004. Applicants are submitting this Brief in triplicate. A Notice of Appeal was timely filed.

1. Real Party in Interest

The real party in interest is Lucent Technologies Inc.

2. Related Appeals and Interferences

Appellants are not aware of any related appeals or interferences.

3. Status of the Claims

Claims 1-19, which are pending in the application, stand finally rejected. The presently pending claims are identical to those as originally filed. A copy of the claims as presently pending is attached hereto as Appendix A.

Claims 1, 2, 5, 6, 8 and 9 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 6,654,359 issued to La Porta et al. ("La Porta") on November 25, 2003. Claims 3, 7, 10, 12-14 and 16-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over La Porta in view of U.S. Patent Number 6,230,012 issued to Wilkie et al. ("Wilkie") on May 8, 2001.

Claims 4, 11, 15, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over La Porta in view of Wilkie, and further 2003 in view of U.S. Patent Number 5,903,735 issued to Kidder et al. ("Kidder") on May 11, 1999.

4. Statement of Amendments

All amendments to the claims have been entered.

5. Summary of the Invention

This present invention relates to maintaining Quality of Service (QoS) standards when Internet Protocol (IP) messages are transmitted in a mobile network conforming to mobile Internet Protocol (mobile IP) standards. In particular, in a first illustrative embodiment of the present invention, these problems are solved by modifying the addresses in an IP packet instead of encapsulating the entire packet, as was done in the prior art. Thus, the problems associated with the first scenario above are avoided because the flow information is still present at a desired location within the packet and, accordingly, is available for use by a QoS enabled router/switch. In addition, in a second illustrative embodiment of the invention, proxy servers are used at both the correspondent and the foreign network to ensure that address translations occurs to allow the QoS criteria/addresses to mirror each other. In this way, Resource Reservation Protocol (RSVP) information is available to routers/servers along the transmission path and, accordingly, QoS standards are maintained in a mobile IP network, regardless of whether the mobile node is at its home address or a care-of-address in a foreign network.

6. Issues presented for Appeal

The issues presented for appeal are:

- a) Whether claims 1, 2, 5, 6, 8 and 9 are properly rejected over La Porta under 35 U.S.C. §102(e),
- b) Whether claims 3, 7, 10, 12-14 and 16-18 are properly rejected over La Porta in view of Wilkie under 35 U.S.C. §103(a), and
- c) Whether claims 4, 11, 15, and 19 are properly rejected over La Porta in view of Wilkie, and further in view of Kidder under 35 U.S.C. §103(a).

7. Grouping of the Claims

Claims 1-11 are method claims. Claims 12-19 are apparatus claims. Claims 1, 12, and 16 are independent claims. For purposes of this appeal, patentability of all the claims is derived from claims 1, 12, and 16, and all the claims stand or fall together.

8. Arguments

35 U.S.C. §102(e) Rejection

Claims 1, 2, 5, 6, 8 and 9 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Number 6,654,359 issued to La Porta et al. on November 25, 2003. Applicants note that the present invention and the cited La Porta reference are both commonly owned by the assignee Lucent Technologies Inc.

Applicants respectfully assert that La Porta does not anticipate claims 1, 2, 5, 6, 8 and 9 of the present invention.

More specifically, La Porta does not teach, "generating, in the foreign network, a modified reply message having a source address of the mobile node's care-of address and a destination address of the correspondent node", as recited in applicants' independent claim 1. Instead, La Porta teaches that, after registering a care-of-address with a home agent, messages sent to a mobile device are encapsulated and forwarded by the home agent to the mobile device's

care-of-address in a foreign network, and received by the mobile device at its new location. In other words, since in La Porta the home agent encapsulates the messages, there is no generation in the foreign network as required by applicants' claim 1.

Having clearly laid out a key difference between La Porta and applicants' invention as claimed, applicants now turn to specifically rebut the comments of the Office Action. The Office Action asserts that La Porta teaches applicants' claim 1 limitation that recites, "generating, in the foreign network, a modified reply message having a source address of the mobile node's care-of address and a destination address of the correspondent node", in column 5, lines 43-52 and column 32, lines 25-49.

Regarding column 5, lines 43-52, applicants note that La Porta discloses IP mobility support for a mobile device when the mobile is away from its home network, as is conventionally done in the "Mobile IP" prior art. In other words, La Porta discloses that a mobile device must register a care-of-address with a home agent when the mobile is situated outside of its home network. The care-of-address provides the mobile device's current IP address, and the home agent is the entry router to the home network.

Operationally, the home agent 1) encapsulates packets destined for the mobile device, i.e., attaches to the packets an IP header with the care-of-address, and 2) forwards the resulting new encapsulated packets to the care-of-address using a technique called "tunneling". Note that the resulting encapsulated packets a) have as a source address the address of a corresponding host and b) have as a destination address the address of the care-of-address. When the encapsulated packets arrive at the care-of-address, i) the outer envelope of the encapsulated packets, which had been added by the home agent, is removed and ii) the resulting recovered original packets are delivered to the mobile device. Applicants note that La Porta discloses teachings that are almost the reverse of what is claimed in applicants' claim 1.

Thus, column 5, lines 43-52 of La Porta does not teach to generate, in the foreign network, a modified reply message having a source address of the mobile

node's care-of-address and a destination address of the correspondent node, as required by applicants' claim 1, and, therefore it does **not** anticipate applicants' claim 1.

Turning to column 32, lines 25-49, of La Porta, it discloses a new-to-old path set-up messages, i.e., path set-up messages between a new base station with a mobile device and an old base station from which the mobile device was handed-off. It also discloses the actions to be taken by a routing daemon after receiving a Routing Information Protocol (RIP) path set-up message.

More specifically, column 32, lines 25-49 refer to an acknowledgement message, which is generated when a path set-up message reaches its final destination at the old base station. However, as explained in column 32, lines 51-52, such a generated acknowledgement message is forwarded to the mobile device. This is clearly different than being generated with a source address of the mobile node's care-of-address, which is required by applicants' claim 1. In other words, in La Porta, an old base station generates a reply message, with the old base station as the source address. This reply message is sent to the new base station with the destination address being that of the mobile device. There is **no** disclosure in La Porta that the acknowledgement has been modified, **nor** is there any disclosure that the mobile device is located outside of its home network.

Thus, since there is no teaching in La Porta of any generation, in the foreign network, of a modified reply message having a source address of the mobile node's care-of-address and a destination address of the correspondent node, as required by applicants' claim 1, La Porta does not anticipate applicants' claim 1.

In view of the foregoing, claim 1 is allowable over La Porta. Since claims 2, 5, 6, 8 and 9 depend from claim 1 and include all of the limitations thereof, these claims are also allowable over La Porta for at least the same reasons set forth above for independent claim 1.

35 U.S.C. §103(a) Rejection

Rejections Under La Porta and Wilkie

Claims 3, 7, 10, 12-14 and 16-18 were rejected under 35 U.S.C. §103(a) as being unpatentable over La Porta in view of U.S. Patent Number 6,230,012 issued to Wilkie et al. ("Wilkie") on May 8, 2001.

Applicants respectfully traverse the rejection.

Claims 3, 7, and 10 depend from independent claim 1 and include all the limitations thereof. As explained hereinabove, La Porta does not teach or suggest, "generating, in the foreign network, a modified reply message having a source address of the mobile node's care-of address and a destination address of the correspondent node", as recited in applicants' independent claim 1. The Office Action does not cite Wilkie as supplying this element, and applicants agree that Wilkie does not teach this element. Therefore, the combination of La Porta and Wilkie does not teach or suggest all of the limitations required by applicants' claims 3, 7, and 10, and so these claims are allowable over the proposed combination.

Independent claims 12 and 16 each have a limitation similar to that of independent claim 1 that is not taught by La Porta and Wilkie, and so these claims are, therefore, likewise allowable. In particular, the limitation calls for a proxy device, in the foreign network, the proxy device being associated with the mobile node for generating a modified reply message having a source address of the mobile node's care-of address and a destination address of the correspondent node. Since claims 13 and 14 depend from claim 12 and claims 17 and 18 depend from claim 16, these claims are also allowable over the proposed combination under 35 U.S.C. §103(a).

Rejections Under La Porta, Wilkie, and Kidder

Claims 4, 11, 15, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over La Porta in view of Wilkie, and further 2003 in view of U.S. Patent Number 5,903,735 issued to Kidder et al. ("Kidder") on May 11, 1999.

Applicants respectfully traverse the rejection.

Claims 4 and 11 depend from independent claim 1. The proposed combination of La Porta and Wilkie does not teach or suggest, generating, in the foreign network, a modified reply message having a source address of the mobile node's care-of address and a destination address of the correspondent node, as recited in applicants' independent claim 1 for the above-mentioned reasons. The Office Action does not cite Kidder as supplying this missing element and applicants agree that La Porta and Wilkie do not teach this element. Therefore, the combination of La Porta, Wilkie, and Kidder does not teach or suggest all of the limitations in applicants' claims 4 and 11, and, therefore, these claims are allowable over the proposed combination.

Claim 15 depends from independent claim 12 and claim 19 depends from independent claim 16. Independent claims 12 and 16 are allowable for the above-mentioned reasons. Since claim 15 depends from claim 12 and claim 19 depends from claim 16, these claims are also allowable over the proposed combination under 35 U.S.C. §103(a).

Conclusion

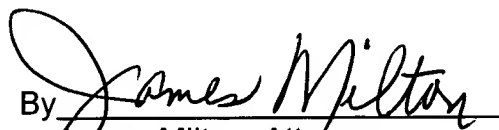
In view of the foregoing, it is submitted that the Examiner is in error. It is, accordingly, respectfully requested that the rejection of claims 1-19 be reversed and the application passed to issue.

Respectfully submitted,

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Lucent Technologies Inc.

Date: 2/1/05

APPENDIX A

IN THE CLAIMS

1 1. (Original) A method of establishing a quality of service session between a
2 correspondent node and a mobile node, the mobile node having a home address in a
3 home network and being temporarily connected at a care-of address in a foreign
4 network, the method comprising the steps of:

5 generating, in the foreign network, a modified reply message having a
6 source address of the mobile node's care-of address and a destination address of the
7 correspondent node; and

8 transmitting the modified reply message.

1 2. (Original) The method of claim 1, further comprising the steps of:

2 receiving, in the home network, a request message having a source
3 address of the correspondent node and a destination address of the mobile node's
4 home address;

5 creating a modified request message by replacing the destination address
6 of the request message with the mobile node's care-of address; and

7 transmitting the modified request message to the foreign network,
8 whereby the modified reply message is generated responsive to the modified request
9 message.

1 3. (Original) The method of claim 2, wherein

2 the step of generating the modified reply message is carried out by proxy
3 device in the foreign network, the proxy device being associated with the mobile node;
4 and

5 further comprising the steps of:

6 responsive to receipt of the modified request message at the proxy device,
7 sending a quality of service indication signal to the mobile node, whereby the modified
8 reply message is generated responsive to receipt of a quality of service
9 acknowledgement from the mobile node.

1 4. (Original) The method of claim 2, wherein

2 the quality of service session is an RSVP session;

3 the request message is a Path message; and

4 the modified reply message is a Reservation message.

1 5. (Original) The method of claim 1, further comprising the steps of:

2 receiving, in the home network, the modified reply message;

3 creating a further modified reply message by replacing the source address
4 with the mobile node's home address; and

5 transmitting the further modified reply message.

1 6. (Original) The method of claim 5, wherein the correspondent node generates

2 the request message and receives the further modified reply message.

1 7. (Original) The method of claim 5, wherein:

2 the correspondent node is associated with a correspondent proxy device,
3 whereby:

4 the correspondent proxy device generates the request message
5 responsive to a quality of service request from the correspondent node; and

6 the correspondent proxy device generates a quality of service confirmation
7 responsive to receipt of the further modified reply message.

1 8. (Original) The method of claim 1, wherein the step of generating the modified

2 reply message is carried out in the mobile node.

1 9. (Original) The method of claim 1, wherein the step of generating the modified
2 reply message comprises:

3 generating a reply message having a source address of the mobile node's
4 home address and a destination address of the correspondent node; and

5 replacing the source address with the mobile node's care-of address,
6 thereby generating the modified reply message.

1 10. (Original) The method of claim 1, in which the step of generating the modified
2 reply message is carried out by a proxy device in the foreign network, the proxy device
3 being associated with the mobile node.

4 11. (Original) The method of claim 1, wherein
5 the quality of service session is an RSVP session; and
6 the modified reply message is a Reservation message.

1 12. (Original) A mobile IP environment capable of supporting a quality of service
2 session, comprising:
3 a correspondent node;
4 a mobile node having a home address in a home network and being
5 temporarily connected at a care-of address in a foreign network,
6 a proxy device, in the foreign network, the proxy device associated with
7 the mobile node for generating a modified reply message having a source address of
8 the mobile node's care-of address and a destination address of the correspondent
9 node.

1 13. (Original) The mobile IP environment of claim 12, wherein the proxy device
2 is located in the mobile node.

1 14. (Original) The mobile IP environment of claim 12, wherein the proxy device
2 is located outside the mobile node and coupled to the mobile node.

1 15. (Original) The mobile IP environment of claim 12, wherein:
2 the quality of service session is an RSVP session;
3 the modified reply message is a Reservation message.

1 16. (Original) A system capable of supporting a quality of service session,
2 comprising:

3 a correspondent node;
4 a mobile node having a home address in a home network and being
5 temporarily connected at a care-of address in a foreign network,
6 a proxy device, in the foreign network, the proxy device associated with
7 the mobile node for generating a modified reply message having a source address of
8 the mobile node's care-of address and a destination address of the correspondent
9 node.

1 17. (Original) The system of claim 16, wherein the proxy device is located in the
2 mobile node.

1 18. (Original) The system of claim 16, wherein the proxy device is located
2 outside the mobile node and coupled to the mobile node.

1 19. (Original) The system of claim 16, wherein:
2 the quality of service session is an RSVP session;
3 the modified reply message is a Reservation message.